

**PHILIPS**

Fluorescent

T5HO

High-Ceiling Solutions

**Elevating  
sustainability**







## The challenge of high-ceiling lighting

Whether you're responsible for lighting a distribution warehouse, a big-box retail outlet or a manufacturing facility, high-ceiling environments present some unique challenges for lighting applications. With a greater distance between the luminaires and the people who utilize the lighting, more light is needed to maintain light levels that support productivity. That same distance makes performing maintenance on those luminaires difficult and time-consuming, when compared to a standard office environment.

In addition to complicating the logistics and cost of maintenance, high-ceiling environments are often subject to a wide range of operating temperatures, which can affect overall system performance and service life. Rising energy costs, along with the need to incorporate sustainable technology, are leading facility managers and lighting departments toward more energy-efficient, environmentally friendly solutions.

# T5HO fluorescent systems from Philips

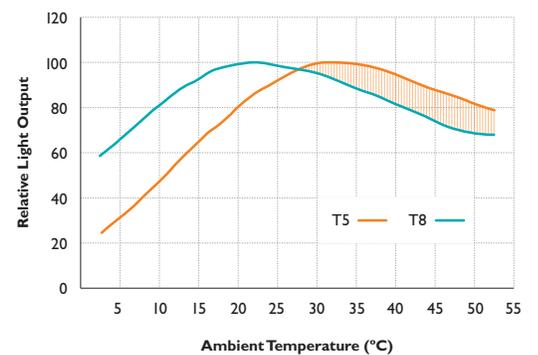
Engineered to optimize energy efficiency and maximize energy savings,<sup>1</sup> Philips T5HO systems have the potential to deliver improved sustainability<sup>2</sup> and reduced maintenance costs for your facility while providing exceptional lighting performance in high-ceiling applications.

By pairing Philips Advance Optanium ballasts with Philips Energy Advantage 49W or 44W T5HO lamps, these systems offer significant advantages over other high-ceiling lighting solutions.

- HID — A traditional approach to high-ceiling lighting, the long run-up time for HID lamps means they must remain on the entire time the facility is open with no opportunity for additional energy savings using occupancy sensors.
- T8 HL — Using the same lamps in high-ceiling areas and the general office spaces of a facility may simplify things when ordering replacements, but the performance advantage Philips T5HO systems offer make them a better choice for high-temperature applications, as T5HO lamps reach their peak output at 95°F/35°C vs. 77°F/25°C for most T8 lamps.
- LED — This technology has made great strides in replacing incandescent lighting, but thermal management in high-ceiling applications presents a challenge with most LED systems.

As part of a full, comprehensive lighting portfolio, Philips T5HO systems represent the state of the art for high-ceiling lighting applications from a proven lighting partner. With more than 100 years of industry experience and industry specific expertise, Philips is leading the way toward a brighter future.

Relative Light Output vs. Ambient Temperature



T5HO lamps provide more light in warmer environments vs. T8.

## Putting sustainability first

Of all the ways to improve the overall sustainability of a facility, choosing energy-efficient lighting provides one of the fastest paybacks. Consider this example of a single fixture:

Lighting System	Mean System Lumens <sup>3</sup>	Rated Average Life <sup>4</sup>	System Watts <sup>5</sup>	Yearly Electrical Cost <sup>6</sup>
<b>44W T5HO (4-Lamp)</b>	<b>17,100</b>	<b>40,000<sup>7</sup></b>	<b>182W</b>	<b>\$65.52</b>
LED Highbay	18,000	100,000 <sup>8</sup>	199W	\$71.64
<b>49W T5HO (4-Lamp)</b>	<b>19,000</b>	<b>40,000<sup>7</sup></b>	<b>208W</b>	<b>\$74.88</b>
32W T8 High Lumen (6-Lamp)	20,078	36,000 <sup>7</sup>	216W	\$77.76
210W Ceramic Metal Halide	19,900	30,000 <sup>9</sup>	227W	\$81.72
54W T5HO (4-Lamp)	19,000	35,000 <sup>7</sup>	234W	\$84.24
320W Quartz Metal Halide	19,040	20,000 <sup>9</sup>	363W	\$130.68

In addition to helping reduce your energy consumption, the Philips T5HO system can support your overall sustainability goals and may contribute toward LEED certification.<sup>2</sup>

- Optanium ballasts are RoHS-compliant.
- Philips Energy Advantage lamps with Alto II technology have the lowest mercury levels in the industry — only 1.4 mg.

These systems may also qualify for utility rebates. Check with your local utility provider for more information.

**RoHS**<sup>10</sup>  
**COMPLIANT**





# Optimizing your maintenance efforts

With traditional series-wired ballasts, when one lamp reaches end-of-life, the other lamp(s) on the same circuit goes out as well. To make the most efficient use of time during maintenance with these systems, it's often easier (but more costly) to simply replace both lamps.

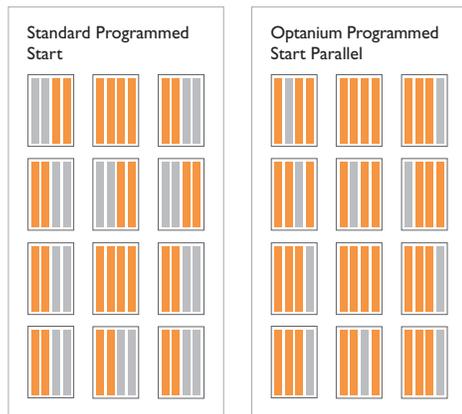
The Philips T5HO system offers independent lamp operation — as one lamp reaches end-of-life, the remaining lamp stays illuminated. That means:

- More lamps continue to provide light and maintain light levels
- Dark spots in luminaires are minimized
- The urgency of re-lamping is reduced
- You may only replace the lamps that need to be replaced\*

The Philips T5HO system also features long-life lamps (rated average life of 40,000 hours\*), which can help minimize the frequency of maintenance and reduce your lamp recycling costs.

## Independent Lamp Operation — T5HO

Ceiling Comparison at ~20% lamps at EOL



Failed lamps

\* Note — Philips recommended practice is to replace all lamps that have reached 70% of their average rated life to reduce maintenance requirements and expenses.

# The power to maximize efficiency



Philips Advance Optanium T5HO ballasts are optimized for use with Philips Energy Advantage 49W and 44W lamps. Together, the lamps and ballast deliver exceptional lighting performance with maximum efficiency. But, that's only the beginning of the benefits these advanced ballasts can deliver.

- Available in 120–277V and 347–480V to meet the requirements of most facilities.
- For high-temperature operation, the all-aluminum case is rated to 194°F/90°C.
- In low-temperature conditions, the ballasts provide reliable lamp starting at -5°F /-15°C.
- Programmed start technology starts the lamps in less than one second, improving the lighting system's response to occupancy sensors.
- Enhanced two-level switching can be used to provide general ambient lighting or meet local building codes.
  - Switches off two lamps and reduces the remaining two lamps to 0.85 ballast factor



# The power to maximize energy savings



Philips Energy Advantage T5HO 49W and 44W lamps provide a more environmentally responsible lighting solution while offering extraordinary light output and outstanding energy savings. Both lamps are rated for 40,000 hours of average life,<sup>11</sup> which can extend your re-lamping cycle and reduce maintenance costs.

- The 49W lamp saves 5 watts of power without sacrificing lumen performance when compared to a standard F54T5HO lamp.

- The 44W lamp saves 10 watts of power while maintaining 93% of the lumen performance of a standard F54T5HO lamp.

Both lamps can also help you reduce your impact on the environment. The ultra-slim designs mean less material is used for each lamp, and each features the lowest mercury levels in the industry (1.4 mg), thanks to Alto II technology.





# The confidence of choosing a proven provider

Putting Philips T5HO systems in your facility is simply a smart decision. In addition to helping you save energy and reduce your maintenance costs, you get a single point of contact for any support issues related to lamps or ballasts.

Contact your Philips sales representative today to learn more about how Philips T5HO systems can contribute to a safe, productive working environment for your facility and enhance your overall sustainability.

# Footnotes

1. See pages 8 and 9 for details.
2. Sustainability refers to the longer rated average life, which can result in less waste, reduced mercury content and RoHS compliance that can reduce the harmful chemicals released into the environment and lower energy consumption that can lead to lower carbon emissions; as compared with a standard 54W T5HO lamp and ballast system.
3. Design lumens are the approximate lamp lumen output at 40% of the lamp's rated average life. This output is based upon measurements obtained during lamp operation on a reference ballast under standard laboratory conditions.
4. Rated average life is the length of operation (in hours) at which point an average of 50% of a large sample of lamps will still be operational and 50% will not. Not applicable to LED.
5. Based on commercially available published data.
6. Operating 12 hours per day, 6 days per week, 50 weeks per year at \$0.10/kWh.
7. Average life under engineering data on programmed start ballast with lamps turned off and restarted once every 12 operating hours.
8. Lifetime of LED fixtures is defined as the point at which the LEDs achieve 70% lumen maintenance (L70) as defined by IES LM-80-08.
9. Rated average life is the life obtained, on average, from large representative groups of lamps in laboratory tests under controlled conditions at 10 or more operating hours per start. It is based on survival of at least 50% of the lamps and allows for individual lamps or groups of lamps to vary considerably from the average.
10. Restrictions on Hazardous Substances (RoHS) is a European directive (2002/95/EC) designed to limit the content of 6 substances [lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE)] in electrical and electronic products. For products used in North America, compliance with RoHS is voluntary and self-certified.
11. Average life under engineering data with lamps turned off and restarted once every 12 operation hours.



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